

DETAILED ACTION

Applicant's remarks and amendments, filed on November 17, 2009, have been carefully considered. Claim 8 has been amended. Claims 17-18 have been added. .
Currently, claims 8, 12, and 17-18 are now pending.

Claim Rejections - 35 USC § 112

1. 35 USC 112 rejection on claim 8 as seen in previous office action dated August 17, 2009 is withdrawn due to applicant's amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 8, 12, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breitling (German Patent Publication DE 24 18 445 A1—made of record by the applicant) in view of Chun et al. (USP No. 6,382,953) in further view of Vaughn (International Published Application WO 99/64221—made of record by the applicant) and in further view of Planeta (USP No. 4,728,277).

3. Regarding claims 8 and 17, Breitling teaches an apparatus for the manufacture of thermoformed bodies by performing a sheet of plastic material,

- a. comprising:

i. a thermoforming mold having a sheet shaping surface, a peripheral edge and an outer step; **(See figure 1, showing a thermoforming mold with an outer periphery and a stepped base.)**

(1) **The stepped base is better seen in figure 3 as part #9 with an additional stepped portion attached thereto.**

ii. a sheet clamping frame peripherally extending around the mold (11), and **(See figure 1, showing a clamping frame (6) which holds a sheet (5). Also see that clamping frame extends around the periphery of the mold.)**

iii. support frame and means to operate said support means for supporting the clamping frame, said support frame being positioned and conformed to move the clamping frame between a raised and a lowered position with respect to the mold; **(See figure 1, showing support means (8) which supports the clamping frame which can raise and lower the frame with respect to the thermoforming mold. See figure 3, showing the extension of the movable support (8).)**

(2) *The extension of the support means (8) controls the movement of the clamping frame (6). Thus the support means is used to control the position of the clamping frame in relation to the mold. See figure 3.*

iv. In which the clamping frame has a geometrically variable shape providing at least a first and a second frame portion, movable in relation to

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each other; **(See figures 2 and 3, disclosing the clamping frame being bent at a hinge (7) to change the shape of the clamping frame. The movable support means (8) move the 1st and 2nd frame portion to a variable shape. See V shape of clamping frame in figure 3.)** and control means being operatively connected to said movable frame portions, to selectively vary their disposition in conformity with the shaping surface of the mold. **(See page 3 [paragraph 0002] and claim 5 disclosing that there are control means which is connected to the thermoforming system which allows a technician to alter the movable frame elements via a hydraulic ram.)**

- b. With respect to claim 8, Breitling does not teach the following
- v. (1) Wherein the clamping frame extends all around the periphery of the mold.
 - vi. (2) A stepped surface which extends from a base of the mold which would allow the clamping frame to mate with the mold
 - vii. (3) Wherein the clamping frame comprises two parallel extending top-open air suction slots having a bottom wall, the suction slots being spaced apart by an intermediate baffle.
 - viii. (4) Wherein each suction slot comprises a bar having a width smaller than and spaced apart from the bottom wall, to provide narrow air passages in communication with an air suction manifold by suction holes.

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c. However, Chun teaches it is well known in the art to use a clamping frame which extends all around the periphery of a mold during a thermoforming operation. **(See abstract and figure 2 (clamping mechanisms- part #94 and #106) and column 4 lines 7-12).**

ix. It would have been obvious to one having the ordinary skill in the art to alter the clamping frame taught in Breitling to incorporate a clamping frame that extended around the whole mold in order to provide better support for the plastic sheet to be thermoformed.

d. With respect to claim 8, the combination of Breitling and Chun do not teach:

x. (2) A stepped surface which extends from a base of the mold which would allow the clamping frame to mate with the mold

xi. (3) Wherein the clamping frame comprises two parallel extending top-open air suction slots having a bottom wall, the suction slots being spaced apart by an intermediate baffle.

xii. (4) Wherein each suction slot comprises a bar having a width smaller than and spaced apart from the bottom wall, to provide narrow air passages in communication with an air suction manifold by suction holes.

e. However, Vaughn teaches:

xiii. (2) A stepped surface which extends from a base of the mold which would allow the clamping frame to mate with the mold. **(See figure 1**

parts 11-14 showing a support member which mates with a mold by way of a stepped portion).

xiv. (3) Wherein the clamping frame comprises a suction means. **(See page 4 2nd paragraph in the detailed description and part 20 of Figure 1).**

(3) It would have been obvious to one having the ordinary skill in the art to combine the teachings of Vaughn with the teachings of Breitling/Chun in order to accommodate a moveable support/frame system which would allow the sheet to be thermoformed to be moved as close as possible to the mold cavity surface. In addition, it would have been obvious to one having the ordinary skill in the art to use a vacuum sealing means in order to seal

f. With respect to claim 8, the combination of Breitling, Chun, and Vaughn do not teach:

xv. (3) Wherein the clamping frame comprises two parallel extending top-open air suction slots having a bottom wall, the suction slots being spaced apart by an intermediate baffle.

xvi. (4) Wherein each suction slot comprises a bar having a width smaller than and spaced apart from the bottom wall, to provide narrow air passages in communication with an air suction manifold by suction holes.

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g. However, Planeta teaches a clamping system which uses venturi type suction slots in order to apply a large suction effect on a plastic sheet material to be formed. **(See abstract and figure 1).**

xviii. Planeta goes on to teach:

(4) A film-handling device with two parallel air slots.

(a) **See parts 22 and 24 of figure 1**

(b) **See column 4 lines 44-55**

(5) Having a bottom wall.

(c) **See bottom wall of part 28 which is under slots 22 and 28**

(6) Wherein the two slots are separated by an intermediate baffle.

(d) **See part 18 which acts as a baffle which divides slots from one another**

(7) Each suction slot having a bar (protrusion) which is smaller than the bottom wall of the slot. This bar (protrusion) acts to provide narrow air passages in communication with an air suction manifold.

(e) **See parts 18b in figure 1 for protrusion/bars**

(f) **See part 28 for air manifold**

xix. Although Planeta teaches an air blowing system. Those having the ordinary skill in the art would know that a suction force could be utilized in

such an apparatus. As it is well known to use suction as a clamping means or film holding means.

(8) For example, Vaughn teaches wherein the clamping means (26) for gripping the plastic sheet (15) are of vacuum operated type.

(See page 4 paragraph [0002] disclosing that the sheet support member (11) holds the sheet at the sheet's edge using a vacuum seal. See figure 6)

(9) The use of a vacuum seal is a well known practice in the art of clamping a sheet in a thermoforming process. Use of a vacuum operated clamping means is a mere choice out of several possibilities including hinged clamps, locked clamps, manually operated clamps, automatically operated clamps, and fasteners. It would have been obvious to one having the ordinary skill in the art to try a vacuum operated gripper since this is merely a determination of design preference.

(10) Therefore, it would have been obvious to one having the ordinary skill in the art to use the venturi effect created by Planeta in order to increase the suction affect of well known vacuum or suction operated clampers or holding means.

h. Breitling and Planeta are analogous art because they are in the same field of endeavor which is using film-handling devices such as sizing frames, clamping frames, or collapsing frames in order to work a sheet of plastic to be formed. At

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the time of the invention, it would have been obvious to one having the ordinary skill in the art, having the teachings of Breitling and Planeta before him or her, to modify the teachings of Breitling to include the teachings of Planeta for the benefit of using air suction to handle a film instead of mechanical means in order to minimize the waste of sheet material needed during typical mechanical handling.

- i. Additionally regarding claim 17, Vaughn teaches wherein a raised peripheral edge of the mold which will conform against the sheet and the stepped surface which allows the clamping frame to mate with the mold **(See figure 1 and mold configuration around parts 11-14)** and wherein the clamping suction means attaches to at least a portion of the bottom of the bottom of the sheet to be thermoformed. **(See figure 1 part 20)**.
4. Regarding claims 12 and 18, Breitling teaches wherein the clamping frame has a variable geometry for holding the plastic sheet. IN addition, the clamping frame is pivotally connected. **(See figure 3 showing V formation of the clamping frame around pivot (7))**.

Response to Arguments

5. Applicant's arguments filed November 17, 2009 have been fully considered but they are not persuasive.
6. **Applicant argument #1:**

a. Applicant seems to argue that the teachings of the Planeta reference operates in a different manner than called for by applicant's invention, thus the use of Planeta is impermissible.

7. **Examiner Response #1:**

b. The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. See, e.g., *In re Kahn*, 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) (motivation question arises in the context of the general problem confronting the inventor rather than the specific problem solved by the invention); *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323, 76 USPQ2d 1662, 1685 (Fed. Cir. 2005) ("One of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings.");

c. In this case the film handling device of Planeta is an example of how the venturi effect can be used in a film handling device to increase the suction effect. The teachings of Planeta would have led one having the ordinary skill in the art to apply venturi principles to known suction handling devices.

8. **Applicant argument #2:**

d. That the Planeta reference cannot be combined with Breitling to teach the use of the specific configuration of a suction slot because Planeta is used for a different scope and a different mode of operation.

9. **Examiner Response #2:**

e. Applicant has argued that Planeta cannot be used as a reference because it is used under a different scope and mode of operation than applicant's invention. However, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). It is examiner's position that the venturi effect demonstrated by applicant's suction slot system and the system of Planeta are well known engineering principles. The venturi effect teaches that when the flow path is decreased the flow viscosity must increase to counteract the decrease in flow path. This is exactly what is happening in Planeta and applicant's invention. As discussed above using suction slots in thermoforming clamping systems is well known and taught by Breitling and Vaughn.

f. Furthermore, In response to applicant's argument that **[Planeta cannot be combined with Breitling]**, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Examiner has laid out the position that the venturi effect is a well known concept for increasing fluid flow and thus increasing the suction effect.

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Planeta gives an example of a venturi flow enhancement system which uses the venturi principles as an example of the well known venturi flow enhancement process. In this case the Planeta reference would have suggested to one having the ordinary skill in the art that suction can be increased using venturi principles.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMJAD ABRAHAM whose telephone number is (571)270-7058. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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AAA

***/Philip C Tucker/
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